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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,874	12/02/2003	Takahiro Oguchi	36856.1187	2735

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EXAMINER

GARCIA, JOANNIE A

ART UNIT PAPER NUMBER

2823

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/725,874

Applicant(s)

OGUCHI, TAKAHIRO

Examiner

Joannie A. Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 9-13, 15, 16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 6, 7, 13, 15, 16, 18 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 5 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12-02-03, 08-4-04</u> . | 6) <input type="checkbox"/> Other: _____ |

Applicant's election without traverse of claims 4, 5, and 9-12, in the reply filed on 04-27-05 is acknowledged.

The disclosure is objected to because of the following informalities: On page 4, line 2, "FIGS. . 6A and 6B" after "illustrated in", should be replaced with --FIGS. 6A and 6B--.

Appropriate correction is required.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, and 10-12, are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in combination with Franssila et al ("Etching through silicon wafer in inductively coupled plasma", Microsystems Technologies, April 2000 (2000-04), pp. 141-144, col. 6, no. 4).

Applicant's admitted prior art discloses manufacturing an external force detection sensor (Page 1, lines 9-11, and Page 4, lines 5-7) comprising interposing an etching stop layer 18 between an element substrate 3 and a support substrate 2 to support the element substrate through-hole dry etching of the element substrate to form a movable sensor element 1 (Figure 7C, Page 1, lines 12-17, Page 4, lines 13-17, and Page 5, lines 2-7).

Applicant's admitted prior art discloses providing an etching stop layer 18 on a top surface of the recessed part of said semiconductor element substrate, wherein said etching stop

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layer is made of an oxide material using a CVD process (Figure 7B, and Page 4, lines 13-17).

Applicant's admitted prior art does not teach providing said etching stop layer using an electrically conductive material such as aluminum, with an etch selectivity of not less than 1.

Franssila et al discloses through-hole etching silicon wafers required in the formation of sensor diaphragms, for example (Introduction, First Paragraph), using dielectric and/or metallic etching stop layers (Introduction, Fourth Paragraph), wherein using an oxide etching stop layer will show a severe notching effect, and using an aluminum etching stop layer will have no notching effect (Results and discussion, Sixth Paragraph). It would have been within the scope of one of ordinary skill in the art to combine the teachings of applicant's admitted prior art and Franssila et al to enable the step of forming etching stop layer 18 of applicant's admitted prior art to be performed, by employing the either of the materials disclosed by Franssila et al.

Claims 5 and 9, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joannie García whose telephone number is (571) 272-1861. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JAG

June 28, 2005

GFourson
Primary Examiner


George Fourson
Primary Examiner
Art Unit 2823